National Park Service
U.S. Department of the Interior

1201 Eye Street, NW
Washington, DC 20005

Zoonotic & Environmentally Transmitted Diseases (ZED) Steering Committee

WASO Contacts

Integrated Pest Management (IPM)
202-513-7183 (East)
970-225-3542 (West)

Public Health
202-513-7226

Risk Management
202-513-7224

Wildlife Health
970-225-3593

Web Resources

IPM Program:
http://www1.nrintra.nps.gov/ipm/index.cfm

Public Health:
http://www.nps.gov/public_health/intra/

Risk Management:
http://www.nps.gov/riskmgmt/

Wildlife Health:
http://inside.nps.gov/programs/program.cfm?prog=304&div=54&page=home

CDC:
http://www.cdc.gov

State and Local Health Departments:
http://www.cdc.gov/mmwr/international/relres.html

West Nile Virus – Wildlife Health

Since the introduction of West Nile virus (WNV) into the United States in 1999, public concern and media attention have been focused primarily on the health threat of the disease to humans; however, the potential impacts on vertebrate wildlife are also significant. Although humans, horses, and other animals can become ill from WNV, birds are the natural host for the virus. High avian mortality, not observed in WNV outbreaks in the eastern hemisphere,is being observed in the United States and Canada. Highest mortality has been observed in birds in the corvid family (crows, jays, and related species). Some raptor species also appear highly susceptible to WNV. The range of species affected, and the extent to which WNV causes direct mortality, or increases susceptibility to other stressors, remains unknown. Thus far, WNV has been detected in over 160 bird and 15 mammal species, as well as captive alligators. Since most surveillance programs to date have focused primarily on corvid species and raptors, the list of affected species will likely continue to increase as more species are tested.

Impacts of WNV on wildlife populations have not been determined. In 2002, approximately 125,000 dead birds were reported to public health and wildlife agencies. Over 30,000 of these birds were tested for WNV, and about 16,000 were found positive for WNV. Because of the large number of dead birds that are never found, these reports represent only a fraction of the number of dead birds in the wild. Some reports estimate the number of birds that potentially died of WNV at well over a million. However, because birds tested for WNV were not evaluated for other causes of death, the role of the virus as a source of mortality is yet to be determined.

Some anecdotal reports suggest localized declines in bird populations, but efforts to evaluate the impact of WNV are ongoing. As the disease occurrence increases in the western United States, the number of corvid and raptor species as well at threatened and endangered species potentially at risk increases substantially. With limited management options, some zoos have vaccinated rare birds with the equine WNV vaccine. However, the efficacy of this vaccine appears minimal and no vaccines are approved for use in birds. New vaccines are under development and testing, but none are currently available for general use.

Monitoring bird populations and dead bird surveillance are important wildlife management activities that can be performed by NPS staff. Parks also offer excellent opportunities for use as outdoor laboratories for cooperative research on WNV. Park staff are encouraged to be observant for dead birds and to submit samples for diagnostic testing. Possession of migratory birds for submission for diagnostic testing within 48 hours is permissible under the Migratory Bird Treaty Act. Because WNV can be transmitted by infected tissues as well as the bite of infective mosquitoes, personal protective equipment (e.g., gloves) should be used when handling dead birds and diagnostic samples.

Much remains unknown about the ecology and epizootiology of WNV in North America. Although the impacts of the disease remain unknown, one thing that experts agree on is that WNV is here to stay.

USGS National Wildlife Health Center - http://www.nwhc.usgs.gov/

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